

S/885/62/000/000/016/035
D234/D308

AUTHOR: Motulevich, V. P.

TITLE: System of equations of the laminar boundary layer, taking into account the chemical reactions and various kinds of diffusion

SOURCE: Akademiya nauk SSSR. Energeticheskiy institut. Fizicheskaya gazodinamika, teploobmen i termodinamika gazov vysokikh temperatur. Moscow, Izd-vo AN SSSR, 1962, 159-170

TEXT: The author obtains the general equations of diffusion

$$\begin{aligned} \rho \left(\frac{\partial k_i}{\partial t} + u \frac{\partial k_i}{\partial x} + v \frac{\partial k_i}{\partial y} \right) = & - \frac{\partial}{\partial y} \left\{ \frac{\rho m_i}{m^2} \sum_j \left[D_{ij} \frac{\partial}{\partial y} (k_j m) \right] \right\} - \\ & - \frac{\partial}{\partial x} \left\{ \frac{\rho m_i}{m^2} \sum_j \left[D_{ij} k_j (m - m_j) \frac{\partial}{\partial x} \ln \rho \right] \right\} - \\ & - \frac{\partial}{\partial y} \left\{ \frac{\rho m_i}{m^2} \sum_j \left[D_{ij} k_j (m - m_j) \frac{\partial}{\partial y} \ln \rho \right] \right\} + \end{aligned}$$

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$$\begin{aligned}
 & + \frac{\partial}{\partial x} \left\{ \frac{\rho m_i}{m^2} \sum_j \left\{ D_{ij} \frac{k_{j,m_i,m}}{RT} \left[X_j - \sum_k (k_k X_k) \right] \right\} \right\} + \\
 & + \frac{\partial}{\partial y} \left\{ \frac{\rho m_i}{m^2} \sum_j \left\{ D_{ij} \frac{k_{j,m_i,m}}{RT} \left[Y_j - \sum_k (k_k Y_k) \right] \right\} \right\} + \frac{\partial}{\partial y} \left(D_i^T \frac{\partial}{\partial y} \ln T \right) + w_i.
 \end{aligned}
 \tag{8}$$

of continuity, of momentum and of energy

$$\begin{aligned}
 \rho \left(\frac{\partial h}{\partial t} + u \frac{\partial h}{\partial x} + v \frac{\partial h}{\partial y} \right) = \frac{\partial}{\partial y} \left(\lambda \frac{\partial T}{\partial y} \right) - \sum_{i,j} \frac{\partial}{\partial y} \left[\frac{\rho m_i}{m^2} D_{ij} h_i \frac{\partial}{\partial y} (k_j m) \right] - \\
 - \sum_{i,j} \left\{ \frac{\partial}{\partial x} \left[\frac{m_i (m - m_i)}{m^2} k_i \rho D_{ij} h \frac{\partial}{\partial x} \ln p \right] + \frac{\partial}{\partial y} \left[\frac{m_i (m - m_i)}{m^2} k_i \rho D_{ij} h_i \frac{\partial}{\partial y} \ln p \right] \right\} +
 \end{aligned}$$

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$$\begin{aligned}
 & + \sum_{i,j} \left\{ \frac{\partial}{\partial x} \left\{ \frac{m_i m_j}{m} k_{ij} \rho L \right\} \right\} \left[X_i - \right. \\
 & + \frac{\partial}{\partial y} \left\{ \frac{m_i m_j}{m} k_{ij} \rho \frac{h_i}{RT} \left[Y_j - \sum_k (k_k Y_k) \right] \right\} \right] + \sum_i \frac{D_i}{D_{ii}} \frac{\partial}{\partial y} \ln T - \\
 & - \sum_{i,j,k} \left\{ \frac{\partial}{\partial x} \left\{ \frac{k_i}{m_i m_j m} RT \frac{D_i^T}{D_{ij}} \left(D_{ik} \frac{m_j}{k_i} - D_{jk} \frac{m_i}{k_j} \right) \times \right. \right. \\
 & \times \left. \left[k_k (m - m_k) \frac{\partial}{\partial x} \ln p - \frac{k_k m_k m}{RT} \left(X_k - \sum_l k_l X_l \right) \right] \right\} + \\
 & + \frac{\partial}{\partial y} \left\{ \frac{k_i}{m_i m_j m} RT \frac{D_i^T}{D_{ij}} \left(D_{ik} \frac{m_j}{k_i} - D_{jk} \frac{m_i}{k_j} \right) \cdot \left[\frac{\partial}{\partial y} (k_k m) + \right. \right. \\
 & + \left. k_k (m - m_k) \frac{\partial}{\partial y} \ln p - \frac{k_k m_k m}{RT} \left(Y_k - \sum_l k_l Y_l \right) \right] \right\} + \\
 & + \sum_{i,j} \frac{\partial}{\partial y} \left[\frac{k_i}{m_i m_j} \frac{RT}{\nu} \frac{D_i^T}{D_{ij}} \left(\frac{D_i^T}{k_i} - \frac{L}{\nu} \frac{\partial}{\partial y} \ln T \right) \right] +
 \end{aligned}$$

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$$\begin{aligned}
 & + \frac{\partial p}{\partial t} + u \frac{\partial p}{\partial x} + \mu \left(\frac{\partial u}{\partial y} \right)^2 + \frac{\rho}{m_i} \sum_{i,j} m_i D_{ij} \left\{ X_i \left\{ \frac{\partial}{\partial x} (k_j m) + \right. \right. \\
 & \quad \left. \left. + k_j (m - m_j) \frac{\partial}{\partial x} (\ln p) - \frac{k_j m_j m}{RT} \left[X_j - \sum_k (k_k X_k) \right] \right\} + \right. \\
 & \quad \left. + Y_i \left\{ \frac{\partial}{\partial y} (k_j m) + k_j (m - m_j) \frac{\partial}{\partial y} (\ln p) - \frac{k_j m_j m}{RT} \left[Y_j - \right. \right. \right. \\
 & \quad \left. \left. \left. - \sum_k (k_k Y_k) \right] \right\} \right\} - \sum_i D_i^T \left[X_i \frac{\partial}{\partial x} (\ln T) + Y_i \frac{\partial}{\partial y} (\ln T) \right]. \quad (11)
 \end{aligned}$$

for the boundary layer, together with boundary conditions.

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S/885/62/000/000/017/035
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AUTHOR: Motulevich, V. P.

TITLE: Heat and mass exchange in a stream of an incompressible liquid in the presence of heterogeneous chemical reactions

SOURCE: Akademiya nauk SSSR. Energeticheskiy institut. Fizicheskaya gazodinamika, teploobmen i termodinamika gazov vysokikh temperatur. Moscow, Izd-vo AN SSSR, 1962, 171-179

TEXT: The author considers a plane or axially symmetrical body in a stream of a many-component gas A capable of reacting with the material of the body B, giving a gaseous substance C. The simplifying assumptions are: the flow takes place in the neighborhood of the critical point and is laminar; the heat conductivity, gas density, dynamical viscosity and c_p are constant, diffusion coefficients are equal for different components of the mixture, $Pr = Le = 1$, the wall is adiabatic, only concentration diffusion is taken into account. General equations are formulated. The author consi-

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ders the case of a single irreversible reaction



then

$$\bar{m} = \bar{m}(\bar{r}) \quad (34)$$

$$\bar{r} = \frac{r}{c_p(T_\infty - T_w)} = \frac{-r}{c_p(T_w - T_\infty)} \quad (35)$$

$$k_{iw} = \frac{k_{i\infty} \bar{r} + \theta_i}{1 + \bar{r}} \quad (36)$$

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$$f^* = \bar{m} \quad (37)$$

$$f^* = \frac{z \left(\frac{\rho}{m_i} \frac{k_{i\infty} \bar{r} + \theta_i}{1 + \bar{r}} \right)^n}{\sqrt{\rho \mu \left(\frac{du}{dx} \right)_0 (\alpha + 1) \exp \left[\frac{A}{R T_\infty - \frac{r}{\bar{r} c_p}} \right]}} \quad (38)$$

Conclusions: the concentration of initial products at the wall depends on temperature gradient only, there is a minimum positive value of $\bar{r}$ and a maximum value of mass transfer parameter $\bar{m}$ corresponding to it, there are extremal values of temperatures of reacting surfaces, in the case of an endothermal reaction there is a

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minimum concentration of initial products at the wall. The stability of solutions is analyzed and the condition of stability

$$\frac{d\bar{m}}{d\bar{r}} \leq \left(\frac{d\bar{r}^*}{d\bar{r}} \right) \quad (42)$$

is obtained. There are 3 figures.

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AUTHOR: Motulevich, V. P.

TITLE: Analysis of the effect of various factors on convective heat and mass transfer, taking into account heterogeneous chemical reactions

SOURCE: Akademiya nauk SSSR. Energeticheskiy institut. Fizicheskaya gazodinamika, teploobmen i termodinamika gazov vysokikh temperatur. Moscow, Izd-vo AN SSSR, 1962, 180-187

TEXT: The author refers to his previous paper (in the same collection, p. 171-179) considering the case of a single irreversible reaction. The points of intersection of the curves $\bar{m}(\bar{T})$ and $\bar{y}^*(\bar{T})$ are analyzed. In the case of an endothermal reaction there is a single solution, which is stable. In the case of an exothermal reaction there are five possible versions: 1) 'cold' reaction, with a single stable solution, 2) a 'cold' solution (stable and a 'hot' solution (stable on the side of larger temperatures, unstable on that of smaller temperatures), 3) a 'hot' and a 'cold' solution,

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Analysis of the effect ...

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both stable, and an unstable intermediate solution, 4) a stable 'hot' solution and a 'cold' solution, unstable on the side of higher temperatures and stable on that of lower temperatures, 5) a single stable 'hot' solution. The phenomena of ignition and extinguishing are discussed and found to correspond to the semistable solutions of the cases 4 and 2 respectively. Temperatures of ignition and extinguishing are analyzed qualitatively, and found to increase with increasing velocity of incident stream, with decreasing size of the body and with the choice of a more streamlined shape of the latter. They increase with density if the order of the reaction (n) is larger than $1/2$, and decrease if n is smaller than $1/2$. The dependence of velocity of surface destruction, surface temperature and concentration of initial components near the surface on various factors is also discussed. There are 5 figures.

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AUTHORS: Motulevich, V. P., Petrov, Yu. N. and Makarenko, I. N.

TITLE: Experimental investigation of convective heat exchange in electric fields

SOURCE: Akademiya nauk SSSR. Energeticheskiy institut. Fizicheskaya gazodinamika, teploobmen i termodinamika gazov vysokikh temperatur. Moscow, Izd-vo AN SSSR, 1962, 243-250

TEXT: To produce an electric field with large tension gradients, the authors used a heated copper wire (40 μ in diameter) combined with a cylinder or a plane plate. Conclusions: With tensions of 150 - 180 kV/cm near the surface of the wire a corona discharge is observed, its intensity increasing rapidly with tension. The presence of the discharge leads to a sharp increase of heat exchange, in some cases by several times. An increase of frequency in the region of corona discharge also leads to an increase of heat exchange. If the velocity of air flow around the wire reaches 5 - 10 m/sec in the absence of discharge, or 40 - 50 m/sec in the

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presence of discharge, the electric field ceases to affect the heat exchange. Reversal of polarity in an electrostatic field does not affect the heat exchange, which confirms a theory given previously by two of the authors. If no special measures are taken against vibrations of the wire, heat exchange may increase considerably owing to mechanical causes which have nothing to do with electric convection. There are 9 figures.

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MOTULEVICH, V. P.

AID Nr. 987-2 11 June

EFFECT OF REMOVAL OR INJECTION OF SUBSTANCES THROUGH POROUS WALLS
ON HEAT TRANSFER TO BLUNT BODIES (USSR)

Motulevich, V. P. Inzhenerno-fizicheskiy zhurnal, no. 4, Apr. 1963, 9-15.
S/170/63/000/004/001/017

An analysis was made of incompressible fluid flow past the stagnation area of a blunt axisymmetrical body through whose walls a fluid is injected or, by suction, withdrawn from the main stream. A general heat transfer formula in terms of the Gauss function and the ratio of the Nusselt numbers for porous and impermeable walls was derived. It is shown that the formula yields results which are in good agreement with values calculated by Hartnett and Eckert, who used a laborious numerical method. Solution for the injection of a fluid having different physical properties than the main flow showed that fluid injection decreases heat transfer; the effect of injection increases with an increase in the specific heat of the injected fluid and with a decrease in its thermal conductivity and density. The study was made at the Power Engineering Institute imeni G. M. Krzhizhanovskiy in Moscow. [PV]

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S/170/63/006/001/001/015
B112/B186

26.2181

AUTHOR: Motulevich, V. P.

TITLE: Turbulent heat and mass exchanges at a plate due to suction and injection of different gases through pores

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 6, no. 1, 1963, 3-13

TEXT: This is a continuation of the paper published by the author in IFZh, 3, no. 8, 1960. A plate in a gas flow is considered at whose surface there is a boundary layer of the width

$$\bar{p} = \left\{ \frac{1 - z_w(1 - \bar{u}) \left(1 - \frac{1}{m}\right)}{1 - z_w(1 - \bar{u})(1 - c_p)} [1 - z_w(1 - c_p)] \times \right. \\ \left. \times \bar{T}_w(1 + B\bar{u} - A^* \bar{u}) \right\}^{-1} \quad (1).$$

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For the dependence of the relative coefficients of the surface friction (c_f/c_{f_0}) on the suction or injection intensity, the following formula is derived:

$$\frac{c_f}{c_{f_0}} = \left(\frac{\mu_w}{\mu_{w0}} \right) \frac{1}{1 + 2n\bar{w}/c_f} \sqrt{\frac{1 - z_w(1 - 1/\bar{m})}{1 - z_w}} \times \exp \left[\frac{E_0 J(1)}{\sqrt{\frac{c_f}{c_{f_0}} |1 - z_w(1 - \bar{c}_p)|}} - E_0 J_0(1) \right] \quad (28).$$

The integral $I(1)$ has the form

$$I(1) = \sqrt{\frac{1}{2} \frac{c_f}{\bar{w}} \frac{1}{A^2(1-a)}} \times \int_0^1 \frac{d\bar{u}}{V(\bar{u}-u_1)(\bar{u}-u_2)(\bar{u}-u_3)(\bar{u}-u_4)} \quad (41)$$

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Turbulent heat and mass exchanges ...

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which can be reduced to an elliptic integral of the first kind. This is done for several cases. Comparison of the theoretical results with the experimental data for subsonic and supersonic flows, obtained by H. Michley et al. (NASA TN 3208, July 1954), E. Bartle, B. Leadon (JA/SS, 27, no. 1, 1960) and others, shows that the method applied is in principle appropriate for the problem. There are 4 figures.

ASSOCIATION: Energeticheskiy institut imeni G. M. Krzhizhanovskogo
(Power Engineering Institute imeni G. M. Krzhizhanovskiy) ✓

SUBMITTED: March 27, 1962

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MOTULEVICH, V.P.

Effect of porous suction or injection of various substances on
the heat transfer of blunt bodies in a liquid flow. Inzh.fiz.
zhur. 6 no.4:8-15 Ap '63. (MIRA 16:5)

1. Energeticheskiy institut imeni G.M.Krzhishanovskogo, Moskva.
(Heat--Transmission) (Hydrodynamics)

L 10804-63 EPA(b)/EWT(1)/BDS--AFFTC/ASD--Pd-1
ACCESSION NR: AP3000445

8/0170/63/006/005/0086/0091

AUTHOR: Motulevich, V. P.

TITLE: On the problem of evaluating the terms of a complete system of boundary layer equations

SOURCE: Inzhenerno-fizicheskiy zhurnal, v. 6, no. 5, 1963, 86-91

TOPIC TAGS: boundary layer, diffusion, molecular-kinetic theory, mass transfer, energy transfer

ABSTRACT: An attempt is made to obtain the quantitative criteria for evaluation of various phenomena and their corresponding terms in a complete system of differential boundary layer equations, taking into account all the factors resulting from the molecular-kinetic theory of matter. Diffusion and energy equations are considered. The expression for the reference term is established and its selection procedure outlined for both equations. An approximate method is developed for calculating the dimensionless parameters of both equations, which makes it possible to determine the relative role of every separate term. Orig. art. has: 42 equations.

Power Engineering Inst.

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MOTULEVICH, V.P.

Supplement to the article "Turbulent heat and mass transfer on a
plate with porous suction and injection of various gases". Inzh.-
fiz. zhur. 6 no.7:127 J1 '63. (MIRA 16:9)
(No subject headings)

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KOSTERIN, S. I.; MARSHAL, A. G.; MOTILEVICH, V. P.; SERGEYEV, A. S.; YAKUSHIN, M. I.

"Wind tunnel with a gas heated by a high-frequency discharge."

report submitted for 2nd All-Union Conf on Heat & Transfer, Minsk, 4-12 May 1964.

Mechanics Inst, AS USSR.

MOTULEVICH, V.P.

Dependence of critical thermal loads on the wetting angle of the
heating surface. Inzh.-fiz. zhur. no.11:112-114 N '64. (MIRA 18:2)

1. Institut mekhaniki AN SSSR, Moskva.

POLYANSKIY, F.Ya., prof.; SHEMYAKIN, I.N., prof.; GLUKHAREV, L.I., dots.; ROMANCHENKO, L.N., kand. ekon. nauk; KAYYE, V.A., kand. ekon. nauk; MOTUS, P.P., kand. ekon. nauk; TYUSHEV, V.A., kand. ekon. nauk; ROMANCHENKO, L.N., kand. ekon. nauk; AVDAKOVA, Yu.K., kand. ekon. nauk, dots., red.; SPERANSKAYA, L., red.; VOSKRESENSKAYA, T., red.; NEZNANOV, V., mladshiy red.; NOGINA, N., tekhn. red.

[Economic history of capitalist countries] Ekonomicheskaya istoriya kapitalisticheskikh stran; kurs lektsii. Moskva, Sotsekgiz, 1962. 634 p. (MIRA 16:2)

(Economic history)

MOTUSHKIN, K. G.

Magneto-Electric Machines

Low frequency magnetic generator. Avtom. i telem. 12 no. 6, 1951.

Monthly List of Russian Accessions, Library of Congress, September 1952.
UNCLASSIFIED.

MOTUSKO, F.Ya.; BREYTMAN, B.M., red.; ROBERTS, G.I., red.;
KUKUSHKINA, Z.M., tekhn. red.

[New condensers with solid organic and inorganic dielectrics] Novye kondensatory s tverdymi organicheskimi i neorganicheskimi dialektrikami. Moskva, TSentr. in-t nauchno-tekhn. informatsii priborostroeniia, elektro-tekhn. promysl. i sredstv avtomatizatsii, 1963. 35 p.
(MIRA 17:1)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po elektrotekhnike.

ACCESSION NR: AP4029143

S/0105/64/000/004/0038/0045

AUTHOR: Dolginov, A. I. (Doctor of technical sciences, Professor, Moscow);
Shatin, V. S. (Engineer, Moscow); Motusko, T. Ya. (Engineer, Moscow)

TITLE: Wave method of calculating transients in electrical systems by digital computers

SOURCE: Elektrichestvo, no. 4, 1964, 38-45

TOPIC TAGS: electric power system, power system transients, transients calculation wave method, computer transients calculation, wave represented transients

ABSTRACT: By representing a transient wave as a series of numbers and by substituting segments of a distributed-parameter line for all apparatus (machines, transformers, reactors, etc.), many problems in electric-power supply systems (short-circuit, recovery-voltage, switching-surge, atmospheric-surge

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ACCESSION NR: AP4029143

calculations) can be solved on a digital computer. The concept of "digital waves" is introduced, and simple operations therewith are explained. The application of the method to single-phase and 3-phase systems having overhead and underground transmission lines is considered. Formulas for handling transformers, reactors, shunt capacitors, resistors, and valve-type lightning arresters are supplied. Programing hints covering the voltages across branch points, refraction indices, and wave delays in machinery are given. Orig. art. has: 7 figures, 20 formulas, and 1 table.

ASSOCIATION: VNIIE (All-Union Scientific Research Institute of Electric Power Engineering); VZEI (All-Union Correspondence Electrotechnical Institute)

SUBMITTED: 27Nov63

DATE ACQ: 01May64

ENCL: 00

SUB CODE: EE, IE

NO REF SOV: 004

OTHER: 001

Card 2/2

MOTUSKO, F.Ya.; VORONINA, A.A.; SEMENOV, V.I.

[Textbook for the course in "Fundamentals of safety engineering and fire prevention"] Uchebnoe posobie po kursu "Osnovy tekhniki bezopasnosti i protivopozharnoi tekhniki. Moskva, Vses. zaochnyi energ. in-t, 1964. Pt.2. 1964. 98 p. (MIRA 18:12)

SHAPOVAL, A.P.; MOTUZ, B.A.

Glued rough stock for the rear legs of wooden chairs.
Der.prom. 9 no.5:5-6 My '60. (MIRA 13:7)

1. Ukrainskiy nauchno-issledovatel'skiy institut mekhanicheskoy
obrabotki dereva.
(Chairs)

MOTUZ, K., red.; YERMOLENKO, V., tekhn.red.

[Cost reduction is the law of management] Snizhenie
sebestoimosti - zakon khoziaistvovaniia. Minsk, Izd-
vo "Belarus'," 1963. 314 p. (MIRA 17:3)

MALININ, Sergey Nikolayevich; IPPA, Maksim Moiseyevich; RAZUMENKO,
Aleksey Venediktovich; MOTUZ, K., red.

[Economy of White Russia at the present-day stage] Narod-
noe khoziaistvo Belorussii na sovremennom etape. Minsk,
Belarus', 1964. 156 p. (MIRA 17:12)

MOTUZ, T.O., aspirant

Pyruvic acid content of the cerebrospinal fluid in children with
tuberculous meningitis. Ped., akush. i gin. 20 no.6:25-28 '58.

(MIRA 13:1)

1. Kafedra gosital'noy pediatrii (zav. - chlen-korrespondent AMN
SSSR prof. O.M. Khokhol) Kiyevskogo ordena Trudovogo Krasnogo Znameni
meditsinskogo instituta im. akad. A.A. Bogomol'tsa (direktor - dots.
I.P. Alekseyenko).

(CEREBROSPINAL FLUID) (PYRUVIC ACID) (MENINGES--TUBERCULOSIS)

MOTUZ, T.O.

Blood serum protein fraction content in children with tuberculous meningitis. Ped., akush. i gin. 22 no.5:21-22 '60. (MIRA 15:6)

1. Kafedra gospiatal'noy pediatrii (zav. - chlen-korrespondent AMN SSSR prof. O.M. Khokhol) Kiyevskogo ordena Trudovogo Krasnogo Znameni meditsinskogo instituta im. akad. Bogomol'tsa (direktor - dotsent I.P. Alekseyenko [Aleksieienko, I.P.]).

(BLOOD PROTEINS)
(MENINGES—TUBERCULOSIS)

MOTUZ, T.O.

Vitamin B₇ metabolism in children with tuberculous meningitis.
Ped., akush. i gin. 23 no.6:12-15 '61. (MIA 15:4)

1. Kafedra gospiatal'noy pediatrii (zaveduyushchiy - prof. O.M. Khokhol) Kiyevskogo meditsinskogo instituta im. akad. Bogomol'tsa (rektor - dotsent V.D. Bratus') i biokhimicheskaya laboratoriya (zaveduyushchiy - kand.med.nauk Z.Yu. Babich [Babych, Z.IU.]) Ukrainskogo nauchno-issledovatel'skogo instituta okhrany materinstva i detstva (direktor - kand.med.nauk O.G. Pap [Pap, O.H.]).
(MENINGES---TUBERCULOSIS) (THIAMINE)

KOTUZ, V.M.

Paleogeographic features of the period of formation of loess soils
in White Russia. Dokl. AN BSSR 1 no.2:66-68 0 '57. (MIRA 11:2)

1. Predstavleno akademikom AN BSSR K.I. Lukashevym.
(White Russia--Loess)

MOTUZ, V. M.: Master Geolog-Mineralo Sci (diss) -- "The distribution, deposit conditions, and genesis of the loess soils of the Belorussian SSR". Minsk, 1958. 22 pp (Acad Sci Beloruss SSR, Inst of Geol Sci), 150 copies (KL, No 5, 1959, 146)

MOTUZ, V.M.

Characteristics of loess in the Novogrudok-Korelichy massif in
Grodno Province. Trudy Inst.geol.nau. AN BSSR no.1:68-77
' 58. (MIRA 12:1)

(Novogrudok District--Loess)

(Korelichy District--Loess)

MOTUZ, V.M.

Data on fossil mollusks from deposits of the new and nearest
divisions of the Quaternary system. Dokl. AN BSSR 2 no.7:
299-302 Ag '58. (MIR 11:10)

1. Predstavleno akademikom AN BSSR K.I.Lukashevym.
(Mollusks, Fossil)

~~MOTUZ, V. M.~~

Loess sediments of the southeastern part of White Russia.
Vestsi AN BSSR. Ser. fiz.-tekhn. no. 2: 81-88 '59.
(MIRA 12:11)

(White Russia--Loess)

MOTUZ, V.M.

Mollusks from Rissian and Wurmian deposits of the Brest and Volyn'
sections of Polesye. Vestsi AN BSSR. Ser. biial. nav. no.2:116-122
'61. (MIRA 14:7)

(POLESYE—MOLLUSKS)

MOTUZ, V.M.

Mollusks from the loess of Minsk. Dokl. AN BSSR 5 no.8:357-360
Ag. 'Cl. (MIRA 14:8)

1. Institut geologicheskikh nauk AN BSSR. Predstavleno akad.
AN BSSR K.I. Lukashevym.
(Minsk region—Mollusks, Fossil)

LUKASHEV, K.I.; MOTUZ, V.M.

Genetic types of loesslike rocks of the Minsk-Dzerzhinsk massif.
Dokl. AN BSSR 6 no.1:45-48 Ja '62. (MIRA 15:2)

1. Institut geologicheskikh nauk AN BSSR.
(Minsk Province--Loess)

TSAPENKO, M.M.; MOTUZ, V.M.; MAKHNACH, N.O.

Study of loess in White Russia. Geol. zhur. 22 no.1:30-39 '62.
(MIRA 15:2)

1. Institut geologicheskikh nauk AN BSSR.
(White Russia--Loess)

MOTUZ, V.M.

Malacofauna of the Quaternary sediments of White Russia.
Vestsi AN BSSR. Ser. fiz.-tekhn. nav. no. 2791-98 '62. (MIRA 18:4)

MOTUZ, V.M.

Origin of loess-type rocks of the Slutsk-Kopyl' massif. Dokl.
AN BSSR 7 no.5:330-333 My '63. (MIRA 16:12)

1. Institut geologii AN BSSR. Predstavleno akademikom AN BSSR
K.I. Lukashevym.

MOTUZ, V.M.

Relation of the loess rocks of the Orshanka-Mogilev-Mstislavl'
plateaulike lowland to the alluvial sediments of the Dnieper
terrace above the floodplain. Vestn AN BSSR. Ser. fiz.-tekh.
nav. no.3:107-110 '64. (MIRA 18:2)

ACC NR: AR6035234

SOURCE CODE: UR/0372/66/000/008/G028/G028

AUTHOR: Motuza, A.; Yasilionis, R.

TITLE: Mathematical models of pattern recognition learning systems

SOURCE: Ref. zh. Kibernetika, Abs. G174

REF SOURCE: Sb. Avtomatika i vychisl. tekhn. Vil'nyus, 1965, 34-40

TOPIC TAGS: signal identification, mathematic model, pattern recognition, recognition system reliability, learning system

ABSTRACT: The reliability of recognition systems is investigated, in which decisions are made on the basis of the sign of

$$y = \sum_{i=1}^N \omega_i x_i - 0.$$

where x_i are the parameters of patterns ($x_i = 1$ or 0), ω_i are the parameters of weight, and 0 is the threshold. It is assumed: 1) y is distributed according to the normal law; 2) correlation coefficients between the parameters are equal to

UDC: 62-506:621.391.193

Card 1/2

ACC NR: AR6035234

each other and to λ ; 3) the probabilities of parameters values do not depend on i . Graphs of the dependence of the probability of correct recognition on the number N of parameters at various values of λ are presented. It is pointed out that by applying the discussed methods it is not always possible to improve recognition reliability by increasing N , and that an increase in N with high λ has but a slight influence on changes in the reliability of the system. There is a table and 4 illustrations and a bibliography of 3 titles. [Translation of abstract]

[NT]

SUB CODE: 12,09, 06/

Card 2/2

LASHAS, A.V. [Lasas, A]; MOTUZA, A.I.

Correcting amplifier for a recording device. Izv. vys. ucheb.
zav.; prib. 7 no.1:39-45 '64. (MIRA 17:9)

1. Kaunasskiy politekhnicheskiiy institut. Rekomendovana
kafedroy avtomaticheskikh i vychislitel'nykh ustroystv.

ACC NR: AR6035571

SOURCE CODE: UR/0044/66/000/009/V046/V046

AUTHOR: Motuza, A. Yu.

TITLE: Computation of the reliability of linear recognition systems

SOURCE: Ref. zh. Matematika, Abs. 9V311

REF SOURCE: Sb. Avtomatika i vychisl. tekhn. Vil'nyus, 1965, 59-64

TOPIC TAGS: probability, linear system, recognition, pattern recognition, linear recognition, cybernetics, linear transformation, vector image

ABSTRACT: The method is based on the linear transformation of the n-dimensional vector image a . Determination of the membership of the image in one of the M classes is made from the maximum coordinate of vector S which is the result of this transformation. Analytical probability formulas are derived for correct recognition of the cases of: 1) a normal distribution of the image a in each class; and 2) the parameters of the recognition system and the components of vector a are independent random values having a normal distribution. Examples are given of existing recognition systems for this mathematical model (in particular, the method of correlation coefficients). There is a bibliography of 6 titles. [Translation of abstract]

Card 1/1

SUB CODE: 12/

UDC: 51:681.14:155

[SP]

NOTVIZENKO, Yu. M.

Notizenko, Yu. M.

"Material on the study of protein and protein fractions of blood serum in patients with staphylodermia during the treatment process." First Leningrad Medical Inst imeni Academician I. P. Pavlov. Leningrad, 1956. (Dissertation For the Degree of Candidate in Medical Science).

Knizhnaya literatura

No 34, 1956. Moscow.

LOPOTKO, I.A., prof.; MOTUZENKO, Z.Ye.

Report on the activities of the administration of the All-Russian
Medical Society of Otorhinolaryngologists in 1958. Vop.otorin. 21
no.6:94-101 H-D '59. (MIRA 13:4)

1. Predsedatel' pravleniya Vserossiyskogo nauchnogo meditsinskogo
obshchestva otorinolaringologov (for Lopotko).
(OTOLARYNGOLOGICAL SOCIETIES)

NIKITSKAYA, B.A.; LAKSHINA, G.M.; MISHCHENKO, A.Ye.; POPKOVA, Ye.G.;
VAYNSHTAYN, A.M.; STRECHNIK, A.M.; (CHERNICHEN, A.M.)

Epidemiological effectiveness of immunization with glycerol formal
streptococcal conjugate vaccine. Zhur. mikrobiol., 1974, 1 (Janun.
4), no. 136-42, 151.
MIRA 1844)

1. Institut per studiu epidemiologii i statistiki bolezni, Moskva,
Nauchno issledovatel'skii tsentr, Moskva, 125080, SSSR.
Voenno-meditsinskii fakul'tet, Moskva, 125080, SSSR.

MOTUZIENE B.

MOTUZIENE, B., apylinkes med. sesuo

Role of nurses in managing a dispensary. Sveik. apsaug. 8
no. 8:51-52 Ag'63.

1. Resp. Kauno klinine ligonine. Vyr. Gydytojas - doc. P.
Jasinskas.

*

SHOYKHET, M.I.; MOTUZKO, M.F.

Determining sugar content in the manufacture of soft drinks. Khar.-
prom. no.4:74-75 O-D '62. (MIRA 16:1)

1. Pervichnaya organizatsiya nauchno-tekhnicheskogo obshchestva
L'vovskogo tekhnika pishchevoy promyshlennosti.
(Soft drinks) (Sugar--Analysis)

MOTUZHA, M. M.

Inhalation tests with bacterial allergens in bronchial asthma.
Trudy TSII 77:3-7 '65. (MIRA 18:9)

1. II kafedra terapii (zav. chlen-korrespondent AMN SSSR prof.
B.Ye. Votchak) Tsentral'nogo instituta usovershenstvovaniya
vrachey.

KISELEVA, V.R.;

Treatment of with beads. Mon.

1.
Voikov)
in

MOTUZOV, Y. Y.

Effect of post-harvest removal of straw by raking on the structure of
soil. Trudy OGMI no.11:115-119 '57. (MIRA 11:3)
(Straw) (Soil physics)

COUNTRY : USSR
 CATEGORY : Soil Science. Mineral Fertilizers. J
 ABST. JOUR. : RZhBiol., No. 3 1959, No. 10693
 AUTHOR : Motuzov, Ya. Ya.
 INST. : Odessa Hydrometeorological Institute
 TITLE : On the Subject of Regularities in the Dynamics of
 Metabolically Absorbed Sodium in the Application of
 Gypsum to Solonetz Soils Under Unirrigated Conditions.
 ORIG. PUB. : Tr. Odessk. gidrometeorol. in-ta, 1958, vyp. 16, 117-120
 ABSTRACT : According to the results of the work at Odessa Hydromet-
 eorological Institute, an amount of gypsum double that of
 the absorbed Na is required for chemical improvement of
 chestnut Solonetz soils of the right shoreline of Ukraine;
 under the conditions of the experiments, this comprised
 2 tons/ha; the increase in the yield of winter wheat was
 2.9 centners/ha or 15.8%, and together with 10 tons of
 manure - 3.5 centners/ha or 19.9%. In the absence of
 irrigation, desalinization of the soil proceeds very
 slowly. Due to the dose of gypsum indicated, the amount

CARD: 1/2

SUCHKOVA, A.V.; MOTUZOV, Ya.Ya.

Effect of different tillage methods on the dynamics of soil
moisture. Trudy OGMI no.18:47-57 '59. (MIRA 13:5)
(Odessa Province--Plowing) (Soil moisture)

MOTUZOVA, I.A.

Some data on the fine cytology of the L-form of *Proteus* *vari-*
garis. Mikrobiologiya 32 no.1:61-65 '63 (MIRA 17:3)

1. Institut morfologii zhivotnykh AN SSSR imeni Severtseva.

MOTYAGINA, G. G.

USSR/Chemistry - Complex compounds

Card 1/1 Pub. 22 - 16/40

Authors : Volshteyn, L.M., and Motyagina, G.G.

Title : Complex chromium - beta-aminopropionic acid compounds

Periodical : Dok. AN SSSR 99/3, 399-402, Nov 21, 1954

Abstract : The derivation of numerous non-cyclic compounds of chromium with amino-acids is announced. Some of these non-cyclic compounds were obtained through direct addition of corresponding amino acids to chromic chloride. It was established that such compounds contain coordinated glycol or alanine molecules and are quite strong acids. The effect of alkalis on the separation of the protons from the coordinated amino acid molecules and origination of certain radicals, which close the cycle with the formation of internal complex salts, is discussed. The effect of alkali on non-cyclic compounds is explained. Five references: 4-USSR and 1-German (1906-1952).

Institution: The F.E. Dzerzhinskiy Chemical-Technological Institute, Dnepropetrovsk

Presented by: Academician I.I. Chernyaev, June 24, 1954

Complex compound of chromium with aspartic acid. I.
M. Volante, G. G. Nelyagina, and L. G. Anashova
Chem. Zashch. Nit. Obezpechennosti, 1964, No. 1, p. 10.
CrCl₃·6H₂O (1.0 g) is dissolved in 10 ml of 10% HCl solution. I dissolves, and the Cr is completely complexed (i.e., it cannot be precipitated with NH₄). Evapn. to ~2 ml. results in a very viscous liquid with no formation of crystals of I. The Cr complex at this stage is believed to be Cr(RH₂)₃Cl₃ (II), where R is -OOCCH(NH₂)CH₂COO-. On adding 0.8M KOH to a soln. of II, at a molar ratio of 3:1 the dark red sol. complex Cr(RH)₃ (III) is formed. If an equal amt. of addnl. KOH is introduced and the soln. evapd. to dryness, Cr remains in soln. as Cr(RH)₃ (IV). If FeCl₃ is added to IV the ppt. contains Fe and Cr. Fe(OH)₃·Cr(RH)₃ is a Cr complex possibly of the formula Fe(OH)₃·Cr(RH)₃. When the soln. obtained in forming IV is evapd. to dryness, and washed in ethylene glycol, the K salt of IV is dissolved. By recrystn. the pure compd. K₃Cr(RH)₃ (V) is obtained in the form of violet crystals, which give a weakly alk. reaction in aq. soln. Aq. solns. of V react with Pb(NO₃)₂ and AgNO₃ to give Pb₂(CrR₃)₂ and Ag(CrR₃), resp. The dissoci. const. of III was $(2.4 \pm 0.9) \times 10^{-4}$, which is close to that of I. The structures of Cr complexes with I are postulated.
G. H. Fuchsman

POPIAGINA, G.G., and others. (1955). "Complex compounds of chromium with certain aminocids." *Doklady Akad. Nauk SSSR*, 117, 110-112. Higher education (USSR). *Dnepropetrovsk Chemical Engineering Institute*. P.E. Dnepropetrovskiy), 200 copies (12,36-37,105)

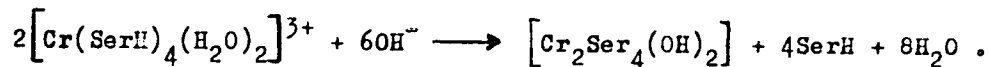
5(2)

AUTHORS: Volshteyn, L. M., Motyagina, G. G. SOV/78-4-9-11/44

TITLE: The Inner-complex Salts of Trivalent Chromium With Serine and Asparagine

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 9, pp 1995-1999 (USSR)

ABSTRACT: Hitherto complex salts of Cr^{III} with serine were unknown. At $n \geq 3$ (n = ratio of serine in moles to Cr in gram-atoms), CrCl_3 was completely converted to complexes of the type $[\text{Cr}(\text{SerH})_n(\text{H}_2\text{O})_{6-n}]^{3+}$ by boiling with serine. These complexes were not decomposed by ammonia. A purple precipitate of the composition $[\text{Cr}_2\text{Ser}_4(\text{OH})_2]$ gradually formed on addition of KOH. For this reaction the following equation was assumed:



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As this compound is not an electrolyte it does not represent a chromium salt, the structure of the complex being similar to the

The Inner-complex Salts of Trivalent Chromium With
Serine and Asparagine

SOV/78-4-9-11/44

equivalent compounds of chromium with glycine and alanine. In preparing this compound a too high alkali concentration is to be avoided, as serine decomposes at a $\text{pH} > 5$ $[\text{Cr}_2\text{Ser}_4(\text{OH})_2]$ on boiling with dilute HCl yielded $[\text{CrSer}_2\text{H}_2\text{OCl}]$. The inner-complex salt of asparagine $[\text{CrAsp}_3]$ had already been prepared by L. A. Chugayev and Ye. Serbin (Ref 1). The authors obtained the same compound by KOH-treatment of non-cyclic complexes of the type $[\text{Cr}(\text{AspH})_n(\text{H}_2\text{O})_{6-n}\text{Cl}_3]$, which had been prepared by boiling chromium trichloride solution with asparagine. The authors were able to confirm the formula given by Chugayev. The complex salt

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The Inner-complex Salts of Trivalent Chromium With
Serine and Asparagine

SOV/78-4-9-11/44

of asparagine could be recrystallized without suffering change,
which shows that it is more stable than the corresponding
compound of glycine and alanine. There are 13 references,
8 of which are Soviet.

ASSOCIATION: Dnepropetrovskiy khimiko-tekhnologicheskoy institut im. F. E.
Dzerzhinskogo (Dnepropetrovsk Institute of Chemical Technology
imeni F. E. Dzerzhinskiy)

SUBMITTED: June 7, 1958

Card 3/3

VOLSHTEYN, L.M.; MOTYAGINA, G.G.

Multistage conversion of diglycyldiglycylplatinum into an inner complex salt. Zhur. neorg. khim. 5 no.8:1730-1734 Ag '60.

(MIRA 13:9)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut im. E.E. Dzerzhinskogo.

(Platinum compounds)

VOLSHTEYN, L.M.; MOGILEVKINA, M.F.; MOTYAGINA, G.G.

Conversion of cis-diglycineplatinum into a trans isomer. Zhur.
neorg.khim. 6 no.5:1105-1109 My '61. (MIRA 14:4)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut imeni
F.E.Dzerzhinskogo.

(Platinum compounds)

VOLSHTEYN, L.M.; MOTYAGINA, G.G.

Interconversions of tetra-, tri-, and diglycine complexes
of bivalent platinum. Zhur.neorg.khim. 7 no.11:2495-2500
N '62. (MIRA 15:12)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut
imeni Dzerzhinskogo.

(Platinum compounds)
(Glycine)

VOISHTEYN, L.M.; MOTYAGINA, G.G.

Complex compound of divalent platinum with glycylglycine.
Zhur. neorg. khim. 10 no.6:1328-1331 1965.

(MIRA 18:65)

1. Novosibirskiy gosudarstvennyy universitet i Tomskiy
khimiko-tekhnologicheskii institut.

MOTYAKHOV, M.A., inzhener.

Semi-automatic submerged-arc spot welding of belt conveyer
drums. Svar.preizv.no.12:14-16 D '55. (MLRA 9:2)

1. Institut "Orguglenash".
(Electric welding)

ZAK, P.S.; ZHURAVLEV, V.L.; ROMANOV, V.A., otv.red.; SADOV, M.T.,
red.; GOTOVTSEV, A.A., red.; GRINBERG, A.Ya., red.; ZUEKOV, V.T.,
red.; KOGAN, A.M., red.; KRUGLIKOV, A.V., red.; REBCUN, K.K.,
red.; NAZIMOV, N.M., red.; NEYMARK, A.M., red.; MOTYAKHOV, M.A.,
red.; SPEVAK, V.Ya., red.; TENENBAUM, M.M., red.; SHNEIDER, E.I.,
red.; ALADOVA, Ye.I., tekhn.red.; SHILYAR, S.Ya., tekhn.red.

[Design and manufacture of globoid gears] Proektirovanie i
izgotovlenie globoidnykh peredach. Moskva, Ugletekhizdat, 1958.
87 p. (Tekhnologiya ugol'nogo mashinostroeniya, no.2).

(MIRA 13:2)

(Gearing)

SOV/137-59-1-743

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 1, p 100 (USSR)

AUTHORS: Motyakhov, M. A., Kalyuzhnyy, A. A.

TITLE: Design of a Shop for the Production of Ceramic Fluxes on an Industrial Scale (Proyekt tsekha promyshlennogo proizvodstva keramicheskikh flyusov)

PERIODICAL: Tekhnol. ugol'n. mashinostroyeniya, 1958, Nr 1, pp 44-49

ABSTRACT: The shop is designed for the manufacture of ceramic flux K-2 developed by the Kiyev Polytechnic Institute. Provisions are made for the following operations: Washing and drying of contaminated components (feldspar, fluorspar, silicate lumps, Ti-concentrate); coarse and medium crushing of components; fine grinding of components; manufacture of water glass; manufacture of a dry flux charge (mixed in a horizontal mixer); preparation of a charge based on water glass (in a traveling-paddle mixer) granulation of flux in a special granulation unit, the operation of which is based on the principle of grinding the mass through a sieve; drying of components in a conveyor oven with lamp-type heating (at 70-90°C); sifting of flux; roasting of flux (at 300-400°), and quality control of flux. The plan

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SOV/137-59-1-743

Design of a Shop for the Production of Ceramic Fluxes on an Industrial Scale

provides for maximum mechanization of operations and minimum dust contamination of the working areas.

Z. Ch.

Card 2/2

0000-1111-1111-1111

AUTHORS: Motyakhov, M.B., Kalyuzhnyy, A.A., Engineers

TITLE: A Stand for Welding Flanges to Pipes (Stanok dlya svarki flantsev k trubam)

PERIODICAL: Svarochnoye proizvodstvo, 1958, Nr 3, pp 43-44 (USSR)

ABSTRACT: Information is presented on a new "PSh-5" stand for the semi-automatic welding of flanges to pipes of 250 to 2,500 mm length and 130 - 250 mm diameter, designed at VNIIP Tuglemash. The stand can also be used for cutting, if the "PSH-5" device is replaced by a cutting torch. Information includes descriptions, illustrations and technical characteristics. There are 5 diagrams.

ASSOCIATION: VNIIP Tuglemash

1. Welding--Equipment 2. Pipes--Welding

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30V/19-58-6-235/685

AUTHORS: Bugayenko, V.A., and Motyakhov, M.A.

TITLE: Method of Checking the Fusion of Welded Joints
(Sposob kontrolya proplavleniya svarivayemykh
soyedineniy)

PERIODICAL: Byulleten' izobreteniy, 1958, Nr 6, p 54
(USSR)

ABSTRACT: Class 21h, 30₁₀. Nr 113376 (562544 of 15
Dec 1956). Submitted to the Committee for In-
ventions and Discoveries at the Ministers
Council of the USSR. A method eliminating
the usual preliminary punching of holes in
the upper sheet in electro-riveted joints;

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SOV/19-58-6-235/685

Method of Checking the Fusion of Welded Joints

consisting in placing the sheets being joined on, e.g., a lattice table, and watching the appearance of a red spot on the rear side of the bottom sheet with the use of a system of mirrors, or with a photo-cell.

Card 2/2

MOTYAKHOV, A.A.; FEL'DMAN, V.S.

St. Petersburg and welding under accelerated conditions. Tekh.ugol.nash.
19.3:9-11 '51. (M A 19:2)

1. Vvedeniye naučno-issledovatel'skiy i proyektno-tekhnicheskoy
laboratorii ugol'noy mashinostroyeniya.
(Electric welding) (Coal handling machinery—M-111.)

18(5,7) SOV/135-89-2-16/24
AUTHORS: Fel'dman, V.S., and Motyakhov, M.A., Engineers
TITLE: Spot-Welding of Steel Without Previous Cleaning
PERIODICAL: Svarochnoye proizvodstvo, 1959, Nr 8, pp 41-42 (USSR)
ABSTRACT: The problem of spot-welding hot-rolled steel without previous cleaning of the parts which are to be welded has not yet been solved satisfactorily up to now. The laboratory for welding of the Scientific Research Bureau and Technological Drafting Office for Mechanical Engineering in the Coal Mining Industry carried out experiments during which steel parts of a thickness of 3-10 mm were spot-welded. In some of these experiments the welding was carried out without previous cleaning of the parts. The main difficulty in welding without cleaning lies in the fact, that there are oxides on the surface of the parts which are welded. These oxides have a high resistance. In consequence a great amount of heat is given out in the contact areas between the electrode and the detail and between the two parts. The concentration of heat is so strong,

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SOV/135-53-8-10/24

Spot-Welding of Steel Without Previous Cleaning

that it causes melting of the metal, a fast wear of the electrodes, and other undesirable consequences. In the VNIPTUGLEMAsh a new method of spot welding was developed which adds a high voltage (4000-6000 V) with a high frequency (100,000 Hz) to the usual industrial frequency in the electrodes. A common oscillator is used to produce the high-frequency current. The oscillator and the welding transformer are switched on and off simultaneously as soon as the parts which are to be welded are clamped between the electrodes. This adds to the safety of work in case that the oscillator does not work right or that the voltage of the industrial current, which is applied to the machine, is too high. The working data of the welding of hot rolled steel without previous cleaning are given in the table with the oscillator in and off operation, and they illustrate the efficiency of the proposed method. To eliminate the influence of other factors the welding was checked in 500 test examples. In welding with the oscillator the number of spills is much lower. It

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SOV/1986-8-16/24

Spot-Welding of Steel Without Previous Cleaning

must be taken into account in this connection that the effect of the oscillator grows if the thickness of the parts is increased. Also important is the fact that the welding process is quieter if the oscillator is used and that the shape of the spots is more correct than using the common method. There are 1 diagram and 1 table.

ASSOCIATION: VNIPTUGLEMASH

Card 3/3

KOGAN, K. I., MOTYAKHOV, M. A.

Certain technical and economic indices of welding in the coal mining machinery industry. Avtom. svar. 13 no.8:52-57 Ag '60.
(MIRA 13:8)

1. Vsesoyuznyy proyektno-tekhnologicheskii institut tyazhelogo mashinostroyeniya (for Kogan).
2. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-tekhnologicheskii institut ugol'nogo mashinostroyeniya (for Motyakhov).
(Coal mining machinery--Welding) (Welding--Costs)

MOTYAKOV, B.I.; BAL'TSER, V.Ya.

Some gas-dynamic calculations of the simultaneous development
of two gas-bearing strata in one well. Gaz. delo no.7:5-12 '64.
(MIRA 17:8)

1. Azerbaydzhanskiy nauchno-issledovatel'skiy institut po
dobyche nefti i Glavmorneft'.

MOTYAKOV, V.I.; BABICH, Yu.A.

**Experimental study of secondary recovery methods in oil fields on
the EM-8 UIMP electric model. Izv.AN Azer.SSR no.10:33-40 0 '55.
(Oil field flooding--Electromechanical analogies) (MLRA 9:4)**

ALEKSEYEV, S.A.; BABICH, Yu.A.; MOTYAKOV, V.I.; CHAL'YAN, K.M.

Experimental study on electrical models of individual problems of geological and technological projections of an alternating sandy-clay horizon. Izv.AN Azerb.SSR no.8:21-29 Ag '56. (MLRA 9:11)
(Petroleum geology--Electromechanical analogies)

Translation from: Referativnyy zhurnal. Mekhanika. 1957. Nr 8, p 90 (USSR) SOV/124-57-8-9206

AUTHOR: Motyakov, V. I.

TITLE: Contribution to the Methodology of the Solution of Reverse Problems
(K metodike resheniya obratnykh zadach)

PERIODICAL: Dokl. AN AzerbSSR, 1956, Vol 12, Nr 2, pp 91-95

ABSTRACT: A generalized methodology of the solution of reverse problems with reference to the solution of a differential equation in terms of partial differentials of the elliptical type which was previously examined for a single particular case [ref. Gutenmakher, L. I., Korol'kov, N.V., Klabukova, L. S., Nikolayev, N. S., Maruashvili, T. I., Rukavodstvo k elektrointegratoram tipa EI-12 (EI-12 Electro-analog Computer Operations Manual), Izd-vo AN SSSR, 1953]. The results obtained are applied to the solution of a number of reverse problems relative to the development of nonhomogeneous oil deposits (i. e., wherein the hydraulic resistance in various deposit regions are different) and in the case in which boundary conditions of the third kind are prescribed and when on one portion of the contour S_0 the value of the pressure function

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Contribution to the Methodology of the Solution of Reverse Problems

SOV/124-57-8-9206

$$P(x, y)|_{S_{01}} = P_0 = \text{const}$$

is given and on another portion of the contour, S_{02} , it is stated that

$$\frac{\partial P}{\partial n} \Big|_{S_{02}} = 0$$

All in all six problems are examined for variously shaped petroleum deposits and for various patterns of injection and producing wells. As a result of the investigations, which were performed on the electric analog EM-8, the yields of the wells are determined.

P. F. Filichakov

Card 2/2

MOTYAKOV, V I

124-11-12925

Translation from: Referativnyy Zhurnal, Mekhanika, 1957, Nr 11, p. 92 (USSR)

AUTHORS: Aleskerov, S. A., Babich, Yu. A., Motyakov, V. I., Chalyan, K. M.

TITLE: Experimental Solution of Problems Described by Fourier's Equation on an EM-8 Electrical Analog Computer. (Opytnoye reshenie zadach, opisyyemykh uravneniyem Fur'ye, na elektricheskoy modeli EM-8).

PERIODICAL: Izv. A. N. AzSSSR, 1957, Nr 1, pp 21-29

ABSTRACT: The paper presents the results of several experimental investigations on the EM-8 electrical analog computer, the prototype of which was developed and constructed at the Institute for Exact Mechanics and Computer Techniques of the USSR Academy of Sciences. The device was used to derive a number of experimental solutions for differential equations of the parabolic type

$$\frac{\partial}{\partial x} \left(A \frac{\partial U}{\partial x} \right) + \frac{\partial}{\partial y} \left(B \frac{\partial U}{\partial y} \right) = C \frac{\partial U}{\partial t}$$

Card 1/2 where A, B, and C are known functions of a point (x, y). The

124-11-12925

Experimental Solution of Problem's Described by Fourier's Equation on an EM-8
Electrical Analog Computer (continued).

desired solution, $U(x, y, t)$ is determined from the stationary boundary conditions and the initial conditions

$$U(x, y, t) \big|_{t=0} = f(x, y) .$$

The analog simulation of the process is performed with the aid of resistor and capacitor networks. The results of the experimental solutions of problemstaken from the theory of seepage of an elastic fluid and from the theory of heat transfer, were correlated with known approximate or exact analytical solutions. From the examples and the correlation analysis adduced, conclusions are drawn relative to the expediency of utilizing the proposed method for the solution of practical problems.

(V. P. Pilatovskiy)

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SOV / 124-58-5-5598

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 5 p 98 (USSR)

AUTHOR: Motyakov, V. I.

TITLE: Construction of Analog Networks for the Flow of Incompressible Fluids in Multiply Connected Nonhomogeneous Regions (Postroyeniye setok techeniya neszhimayemoy zhidkosti dlya mnogo svyaznykh neodnorodnykh oblastey)

PERIODICAL: Izv. AN AzerbSSR, 1957, Nr 3, pp 19-37

ABSTRACT: Three examples of the construction of electric analog simulator networks are given for plane seepage in multiply connected nonhomogeneous regions. In order to obtain the flow line network the author dissects the given region into a number of auxiliary singly connected, homogeneous, elemental regions and finds on these new simulation analogs the flow lines as represented by the equipotential lines. The dissection boundaries that coincide with some of the flow lines are represented graphically as trajectories orthogonal to the equipotential lines determined previously in the region examined. The theoretical part of the article contains known formulations from the theory of the function of a complex variable. In the illustrative examples the

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Construction of Analog Networks (cont)

cusped points and the breakdown of the orthogonality of the network along the lines of variation of the filtration coefficient are erroneously left out. The author does not mention the fact that the method used for the determination of the dissection lines is graphically imperfect. Usually these lines are located by the method of successive approximations, whereupon there is no need to dissect the original region into separate sections (see for example Bradfield and others. Proc. Roy. Soc., 1937, Vol A 159, Nr 898).

G. Yu Stepanov

1. Fluid flow--Mathematical analysis
2. Fluid flow--Simulation
3. Electrical networks--Applications

Card 2/2

SOV/124-58-4-4323

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 4, p 90 (USSR)

AUTHOR: Motyakov, V. I.

TITLE: Methods for the Construction of Streamlines for Singly Connected Nonhomogeneous Regions With the Aid of Electric Network Analogs (Metodika postroyeniya liniy toka dlya odnosvyaznykh neodnorodnykh oblastey s pomoshch'yu elektricheskikh setochnykh modeley)

PERIODICAL: Dokl. AN AzerbSSR, 1957, Vol 13, Nr 6, pp 609-612

ABSTRACT: The article describes the well-known methods for the construction of streamlines by means of the reversal of the initial problem relative to the case of a singly-connected region consisting of m homogeneous zones when the following boundary conditions prevail: $P(x, y) = \text{const}$ along two boundary segments where $\partial P / \partial n = 0$. Bibliography: 13 references.

1. Materials--Configuration 2. Electrical
networks--Applications

P. F. Fil'chakov

Card 1/1

AUTHOR: MOTYAKOV, V.I. PA - 2135
 TITLE: Solution of Inverse Problem of Stationary Flow in Underground
 Hydraulic by means of the Electric Grid Models (Resheniye obratnykh
 zadach ustanovivshegosya dvizheniya v podzemnoy gidravlike na
 elektricheskikh setochnykh modelyakh. Russian).
 PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol 27, Nr 2, pp 364 - 367 (U.S.S.R.)
 Received: 3 / 1957 Reviewed: 4 / 1957
 ABSTRACT: The task of determining productiveness of bore holes is called
 inverse problem. In the present work a more general method (the
 domain may also be inhomogeneous) is proposed. It is assumed that
 on the boundary S_n of the domain the functions or their normal
 derivations are equal to zero. This applies also in the case of
 bore holes with a constant discharge pressure. A two-dimensional
 domain V with many connections is assumed and the position of the
 contours of the bore holes N_j is given in form of circular lines C_j .
 The differential equation for the pressure $P(x,y)$ is written down.
 At some points M_i within the domain V values of the function $P(x,y)$
 are given. According to a formula the delivery capacity q_j of the
 bore holes is determined. Normal delivery is given on the model
 as amperage. It is now necessary to find such values of the sources
 $q_1, q_2, \dots, q_n$ in the points N_j that the function $P(x,y)$ assumes

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Gas overflow through a slightly permeable interlayer. Izv.vys.khemb.
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